

ART. XVIII.—*Contributions to the Flora of Australia*, No. 24.¹

BY

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(With Plates XXVI., XXVII. and XXVIII.)

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ACACIA BEAUVERDIANA, n. sp.

Phyllodia rigid, erect, long linear, flattened, falcate, slightly narrowed towards base and apex, not so long as in *A. coriacea*, reaching some 10 cm. long and 1.5 mm. wide, thickly coriaceous, with numerous fine longitudinal nerves, finely perceptible with naked eye. Peduncles in pairs, each bearing globular heads very slightly cylindrical. Flowers, 5 merous. Calyx tubular, slightly pubescent lobes. Petals rather longer, divided about the middle, but quite glabrous. Pod not seen.

By Bentham's classification, this *Acacia* is very closely related to *A. coriacea*, from which it is separated by having much shorter phyllodes, and in the very marked difference of its corolla, which is quite glabrous in *A. Beauverdiana*, and very pubescent in *A. coriacea* (*vide* Mueller's *Iconography of Australian Acacias*).

Its calyx and corolla are somewhat similar to *A. aciphylla*, and it may possibly be an intermediate link between this species and *A. coriacea*.

Locality.—Cowcowing, W. Australia. Max. Koch, 1904, No. 1289.

Named in honour of Gustave Beauverd, Conservator of Herbarium Boissier, Geneva, Switzerland.

1. No. 23 in the same issue of the Society's Proceedings.

CLAYTONIA PERFOLIATA, Don. "Perfoliate Claytonia." (Portulacaceae).

Baulkamangh, near Shepparton, W. H. Callister, October, 1915; Smythesdale, Mabel White, October, 1915.

It is a native of North America, naturalised as a weed in Europe, and now apparently in process of establishing itself as a naturalised alien in Victoria. It has no poisonous or injurious properties, and in pasture it will do no harm, as it is eaten by stock, and has also been used as a salad vegetable or spinach. In cultivated land or in gardens it would be troublesome, owing to its rapid powers of seeding. The plant can hardly be regarded as definitely naturalised as yet, and may not be permanently established in the Shepparton locality, as it was found by a farmer growing near a boot scraper at his kitchen door, apparently from seeds picked up on the boots when walking through the fields, but no other plants could be found growing in the open fields. They might, however, have died down after seeding, and may reappear later on.

HOMERIA COLLINA, Benth, var MINIATA, Sweet. Cape Tulip.
(Irideae).

This poisonous weed, a native of S. Africa, has in the past 10 years spread at Carisbrook, until it now covers about 500 acres, a few fields containing more of it than of any other plant. The bulbils produced above and below ground make the plant very hard to suppress when once established. Thorough cultivation and leafy crops gradually suppress it. Where the ground is not broken frequent cutting is necessary. If dug out and the ground left bare, it soon reappears in greater abundance than before, owing to the small bulbils and seeds left behind in the soil.

ORTHOCARPUS PURPURESCENS, Benth. Purple Orthocarpus. (Scrophulariaceae).

Euroa, J. G. Saunderson, November, 1915.

This plant, a native of California, is injurious in pastures on account of its roots being parasitic on the roots of grasses. It is a freely seeding annual, introduced with fodder imported from N. America, but not sufficiently established to be considered naturalised. It is not poisonous, but suddenly appeared in many localities in 1915.

Species of *Pterostylis*.

Much confusion has existed in the determination of many of the species of this group.

Three species that are closely related are:—

1. *P. revoluta*, R.Br.
2. *P. reflexa*, R.Br.
3. *P. praecox*, Lindl.

I. Bentham grouped the first two in one group: *P. reflexa*, *vide* pp. 359. *Flora Aust.*—"In Brown's *P. revoluta* the flowers are considerably larger, and the labellum tapers towards the end; but without the long point of *P. reflexa*. . . . The long and short pointed labella, and large and smaller flowers, however, pass so much into one another, that I have been unable to sort the specimens into distinct varieties."

II. In his "Australian Orchids," Fitzgerald figures *P. striata* as a new species; but it is undoubtedly synonymous with *P. praecox*, Lindl.—*e.g.*, compare the plate with that of *Disperis alata*, Labill. *Pl. Nov. Holl.*, ii., 59, t. 210. It agrees also with specimens in *Melb. Herb.*, collected by Milligan, Flinders Is., and by Baron von Mueller at Wilson's Promontory.

III. There exists a larger form of *P. praecox*, which Bentham has placed in *P. reflexa*—*e.g.*, Hampden, W.A., W. Clarke. Baron von Mueller sometimes classed it as *P. reflexa*; but often also as *P. praecox*. One specially fine example of this type we have figured. It was collected in 1896 at Encounter Bay, South Australia, by Miss Hussey, and is noted in the Herbarium by the Baron as the true *P. praecox*.

IV. As there evidently existed a larger form of *P. praecox*, and since Bentham had grouped this in *P. reflexa*, Prof. Ewart came to the conclusion that the true type of *P. praecox* must essentially be placed in the one group of *P. reflexa*, and acting upon this classification he renamed *P. praecox* as *P. reflexa*, var. *intermedia*.

V. But when O. H. Sargent discovered and named *P. constricta* it was evidently related to this group of *P. praecox*. Oddly enough Bentham had evidently taken an orchid, identically similar to Sargent's as one of his type, *P. reflexa*—*e.g.*, No. 9. Greenough flat, Ch. Gray. If Bentham's classification be correct, then Sargent's *P. constricta* could only be a variety.

VI. After a very exhaustive examination of the specimens in the Melbourne Herbarium, in which the flowers were subjected to a thorough microscopic examination, we have come to the following conclusions:—

1. The column and its appendages, and the appendage on the labellum do not serve as a constant and sure guide in this group of orchids.

2. That evolution is evidently taking place in these related groups, and that so many stages in the scale are represented that it is difficult to limit the peculiarities, and to say that one type can be definitely separated from another.

3. That the arrangement of the vegetative leaves, the labella, and the characters of the petals and sepals in the galea and the claw are the surest guide to a clear distinction.

Acting on these conclusions, we have arrived at the following classification, which to us appears satisfactory.

(i.) That taking the species we have mentioned, there is one group having the *two lateral petals* of the galea *long and pointed*.

(ii.) And another group, having the *two lateral petals* of the galea *broad* and more rounded at the ends.

Thus—

Group (a) includes *P. reflexa* and *P. revoluta*.

Group (b) includes *P. praecox*, a larger form of *P. praecox*, mentioned above, and for which we have suggested the name *P. praecox*, var. *robusta*, and *P. constricta*.

Group A.—Petals and sepals of galea elongated, and ending in fine points, even when flower small.

1. *P. reflexa*, R. Br., broad labellum, terminating in a fine point, e.g., Pl. Preiss, 2203, Bentham's type.

Localities—

Victoria—

Grampians.

Upper Murray, C. French, Junr.

Bacchus Marsh, C. French, Junr.

Upper Avoca, A. Purdie, May, 1895.

Port Fairy, Rev. W. Whan, 1889.

Lower Yarra, G. Coghill, April, 1885.

Yarra, April, 1867.

Tarangower.

New South Wales—

Quildong, No. 442, W. Bauerlen.

Near Sydney, Fitzgerald.

Near Scone, N.S.W., Miss H. Carter, 1883.

South Australia—

Near Mount Lofty, A. Tepper, 1882.

2. *P. revoluta*, R. Br., long narrow, strap-like labellum.

Localities—

Victoria—

Grampians.

White Hills, Bendigo, A. Haggard, 1880.

Western Port.

Snowy River, John Cameron, 1889.

Near Nhill, Mallee, C. Walter, June, 1892.

Black Ranges, near Grampians, C. Walter,
1892.*New South Wales*—

New England, C. Stuart.

Blue Mountains, E. Daintree.

Queensland—

South Queensland, Hartmann, 1875.

Group B.—Petals and sepals of galea short, the petals ending in blunt or rounded ends.

1. *P. praecox*, Lindl (*P. striata*, Fitz.), (*P. reflexa*, var. *intermedia*, Ewart), flower small, broad labellum.

Localities—*Victoria*—

Flinders Establishments, July, 1847.

Dandenong Ranges, C. French, Senr.

Mentone, May, June, July, 1907, J. R. Tovey.

Brighton, July, 1882, C. French, Senr.

Portland, July, 1906, S. Johnson.

Queenscliff, 1908, G. Coghill.

Dimboola, July, 1897, C. Walter.

Cheltenham, April, 1809.

Kewell, July, 1908, C. French, Junr.

Albacutya, September, 1887, C. French, Senr.

Wilson's Promontory, F. Mueller.

Moyston, 1883 D. Sullivan.

County Follett, August, 1906, F. M. Reader.

South Australia—

Kangaroo Island, July, 1882, R. S. Rogers.

Tasmania—

Milligan.

Port Arthur, August, 1892, Rev. S. Bufton.

2. *P. praecox* (Lindl.), var. *robusta* (Ewart), *P. reflexa*, (R. Br.).
The whole habit of this plant is similar to that of *P. praecox*, but is larger and stouter, e.g., Encounter Bay, S.A., 1896, Miss Hussey.

Localities—*Victoria*—

Loddon, McKibbin, 1882.

Dimboola, F. M. Reader, July, 1887.

Wedderburn, Fr. Colvin, May, 1880.

Little River, Fullagar.

South Australia—

Encounter Bay, Miss Hussey, 1896.

Mount Lofty Range.

Western Australia—

Vassey River, Oldfield.

Hampden, W. Clarke.

Tasmania—

Gordon River, Miss Warburton, 1896.

3. *P. constricta*.—O. H. Sargent.

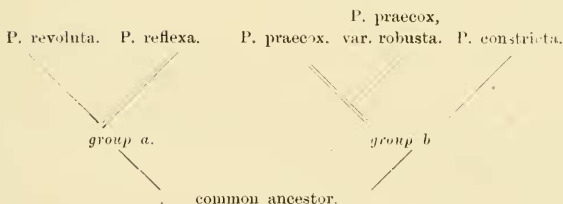
Localities—

Western Australia—

1. Cut Hill, York, No. 472, O. H. Sargent,
July, 1907.

2. Cowcowing, No. 1073, M. Koch, 1904.

3. Greenough Flat, Ch. Gray, No. 9.



This diagram suggests a very interesting phylogenetic change.

Group A—Has long pointed petals and sepals in the galea, but the two species into which it divides have broad and strap-like labella indicated by the single and double lines respectively.

Group B—Has characteristic short, broad petals in the galea; and the two main species into which it is divided have broad and strap-like labella respectively.

It is quite possible in the evolution of the group that there could thus be divergence of external features of the flower, and likewise that both types of labella should be represented in the subsequent divergences

P. TOVEYANA, n. sp.

Leaves alternate, under 1 inch long, ovate or broadly oblong
Scape 1 flowered. Petals and sepals of galea short and broad.
Labellum much longer than column, broad at the base, and slightly
tapering towards anterior end. Slightly but very distinctly bifid.
Appendage hairs very pronounced.

Locality.—Vic., Mentone. J. R. Tovey, 1907, 1908, 1909, 1910,
1911, 1912, 1913, 1914, 1915. Mentone, A. Tadgell, July, 1909.

This orchid was first discovered by Mr. Tovey at Mentone, in June, 1907, and was growing near both *P. praecox* and *P. concinna*.

Its chief distinguishing features were that the vegetative leaves were arranged alternately along the stem as in *P. praecox*, while the labellum was slightly bifid; but not nearly so pronounced as in *P. concinna*. In examination of several fresh specimens, the labellum of *P. Toveyana* was found to be broader and longer than either of the two before-mentioned.

In some cases it was found that the rule was departed from. Occasionally some of the plants had the higher leaves alternately arranged as in *P. praecox*, and two or three basal ones as a radical rosette as in *P. concinna*.

This latter feature suggested hybridisation, and the orchids were exhibited in June, 1907, at the Field Naturalists' Club meeting as such. However, it was suggested that Mr. Tovey should keep the orchid under observation.

He has done so, and during the eight years that have elapsed since that date it has kept true to its original characteristics. But he has noted that when the plant is young, and first flowers, some of the leaves show as a basal rosette; but that the stem quickly elongates, and the leaves then take up the alternate arrangement, so that what was apparently a hybrid feature is thus shown to be only a question of the age of the plant.

Specimens for the years 1907, 1909, 1913, 1914, 1915, are preserved in the Melbourne Herbarium.

This orchid flowers in June, and we were able to visit the locality and see the orchid in its habitat, and obtain drawings from fresh specimens.

Notes on other Orchids.

1. A very large specimen of *P. praecox*, var. *robusta*, collected by Miss Bunbury, Geography Bay, W. Aust., suggests a very great similarity to *P. truncata*, Fitz. It agrees in many respects with that species, and especially so in a very striking feature—*i.e.*, in having a gland in the sinus of the column.

2. *P. grandiflora*, R.Br., a most characteristic feature, apart from its very distinct type of labellum, is the wing-like character of the lateral sepals of the galea. Both are broadened out, and have a somewhat pinnate veining. This was noted by Mr. Tovey.

3. *P. grandiflora* (R.Br.), var. *Frenchii* (Mueller), Upper Avoca, May, 1895, Alex. Purdie, is undoubtedly a typical form of *P. reflexa*.

4. In his "Australian Orchids," Fitzgerald has greatly exaggerated the width of the mid-rib of the labellum of *P. reflexa*.

5. *P. obtusa*, as determined by the Baron from the hills near Pt. Elliot, Miss Hussey, No. 427, in 1895, is undoubtedly *P. pedunculata*. No specimen of this orchid has therefore been recorded from the mainland of South Australia, *vide* Dr. Rogers, in "South Australian Orchids."

RESTIO USTULATUS (F. Mueller, M.S.)

Stems erect, terete, sometimes divided, 1 to 2 ft. high. Lower sheathing scales closely imbricated, about 1 inch in length. The upper ones longer— $1\frac{1}{2}$ ins., and looser. All acute and well sheathing the stem.

The floral bracts acute. That below the lower spikelets $\frac{1}{2}$ in. in length, while that below the terminal spikelet only $\frac{1}{4}$ in. in length.

Spikelets in both sexes somewhat different. The male are more conical, with very imbricate, appressed glumes. Those of the female are broader, with larger glumes, and not nearly so appressed.

Glumes in every case are obtuse.

Spikelets in both sexes few at the end of the stem, 1 to 3, sessile, or nearly so within the bracts, or one within a lower bract on a long pedicel that may extend to almost same length as terminal spike. Spikelets oblong, conical, 1 in. long, of a dark brown, and very closely resembling the solitary terminal spikelet of *Ecdeiocolea monostachya*; but the chief differences are:—

1. No. of spikelets on each stem.
2. Closeness of sheathing scale to spikelet.
3. Length of sheathing scale.
4. No. of sheathing scales.
5. *R. ustulatus* more flattened, and redder spikelet.

It also resembles in appearance the spikelets of *Lepiconia* among the Cyperaceae.

Glumes ovate, obtuse, very numerous, rigid, and closely imbricate. The outer ones shorter and empty. Perianth in both sexes very flat, about as long as the glumes, glabrous, or very hairy near the tips.

The three outer segments of the perianth hairy near the tips, the three inner ones quite glabrous and hyaline.

In the male flowers: Stamens 3, filaments free. Anthers of two distinct cells as seen in drawing. Attached to centre only.

Female flowers: Ovary 2-celled, style 2, free and stigmatic, almost from the base.

This *Restio* in no way resembles any hitherto described; but adopting the classification as given in Bentham's key, it would come near to *R. deformis*, from which in general appearance and spikelets it is very dissimilar.

EXPLANATION OF PLATES.

PLATE XXVI.

Acacia Beauverdiana, and *Restio ustulatus*. (Figs. 1-11.) (Figs. 14-18.)

- Fig. 1.—Branch of *Acacia Beauverdiana* ($\frac{1}{2}$ natural size).
- Fig. 2.—Flower bud (magnified).
- Fig. 3.—Single flower (magnified).
- Fig. 4.—Portion of corolla (magnified).
- Fig. 5.—Processes from corolla (magnified).
- Fig. 6.—Portion of calyx (magnified).
- Fig. 7.—Hairs from calyx (magnified).
- Fig. 8.—Single bract from flower (magnified).
- Fig. 9.—Stamen (magnified).
- Fig. 10.—Compound pollen grains (magnified).
- Fig. 11.—Transverse section of edge of phyllode (magnified).
- Fig. 12.—*Restio ustulatus*.—♀ inflorescence ($\frac{1}{2}$ natural size)
- Fig. 13.—♂ inflorescence ($\frac{1}{2}$ natural size).
- Fig. 14.—Abnormal ♂ inflorescence ($\frac{1}{2}$ natural size).
- Fig. 15.—Single male flower (magnified).
- Fig. 16.—Pistil (magnified).
- Fig. 17.—T.S. two-celled ovary (magnified).
- Fig. 18.—Single stamen (magnified).
- Fig. 19.—Transverse section of anther.

PLATE XXVII.

Pterostylis revoluta, *Pterostylis reflexa*, *Pterostylis praecox*, *P. praecox* var. *robusta*, *Pterostylis constricta*.

- Fig. 1.—Flower of *P. revoluta* ($\frac{1}{2}$ natural size).
- Fig. 2.—Labellum of *P. revoluta* (enlarged).
- Fig. 3.—Flower of *P. reflexa* ($\frac{1}{2}$ natural size).
- Fig. 4.—Flower of *P. reflexa* (smaller variety), ($\frac{1}{2}$ natural size).
- Fig. 5.—Labellum of *P. reflexa* (enlarged).
- Fig. 6.—Labellum of *P. reflexa* without terminal point (enlarged).
- Fig. 7.—Plant of *P. praecox*, var. *robusta* ($\frac{1}{2}$ natural size).
- Fig. 8.—Labellum of *P. praecox* (enlarged).

